Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1–20 (canceled).

21. (Presently amended) A method for forming conducting structures separated by dielectric material over a substrate, comprising:

providing a substrate and a wiring layer above the substrate;

forming a conductive protective layer on the wiring layer;

forming a cap layer above the conductive protective layer;

forming a first mask above the cap layer so that the first mask exposes selected portions of the cap layer;

etching at least the cap layer using the first mask;

etching the wiring layer using the remaining portions of the cap layer as a hard mask to form wiring lines separated by gaps, the protective layer on the wiring lines having the remaining portions of the cap layer thereon, at least portions of sides of the wiring lines exposed by the etching the wiring layer; and

depositing a dielectric material within the gaps at a sputtering rate sufficient to fill the gaps, using high density plasma chemical vapor deposition, the remaining portions of the cap layer in place at least during a time when the depositing begins, an initial stage of the depositing forming layers of the dielectric material over the substrate, over the exposed side portions of the wiring lines and over at least portions of the remaining portions of the cap layer, the layers formed over the exposed side portions of the wiring lines in the initial stage remaining throughout the depositing of the dielectric material within the gaps.

22. (Previously presented) The method of claim 21, wherein the cap layer comprises a material selected from the group consisting of a silicon nitride material and an oxynitride material.

23. (Previously presented) The method of claim 21, wherein a remaining portion of the cap layer above at least one wiring line has a rectangular shape in cross section.

24. (Previously presented) The method of claim 21, wherein prior to the depositing a remaining portion of the cap layer above at least one wiring line has a trapezoidal shape in cross section.

25. (Previously presented) The method of claim 24, wherein prior to the depositing the trapezoidal shape includes top and bottom surfaces parallel to one another and side surfaces that extend inwardly from the bottom surface to the top surface.

26. (Previously presented) The method of claim 21, wherein prior to the depositing the remaining portion of the cap layer above at least one wiring line has a triangular shape in cross section.

27. (Previously presented) The method of claim 21, wherein prior to the depositing a remaining portion of the cap layer above at least one wiring line has, in cross section, a rectangular shape having its upper comers etched away.

28. (Previously presented) The method of claim 21, wherein a remaining portion of the cap layer is partially etched and redeposited into the gaps during the high density plasma chemical vapor deposition process.

29. (Previously presented) The method of claim 21, wherein a remaining portion of the cap layer is partially etched during the deposition of a dielectric material using high density plasma chemical vapor deposition.

30. (Previously presented) The method of claim 21, wherein the first mask comprises a patterned photoresist layer.

31. (Previously presented) The method of claim 21, further comprising the formation of a surface layer between the substrate and the wiring layer, the surface layer being a barrier between the substrate and wiring layer.

32. (Previously presented) The method of claim 21, wherein the cap layer comprises an oxide.

33. (Previously presented) The method of claim 21, wherein an amount of contaminants deposited within the gaps filled with the dielectric material is decreased by comparison to a process in which the first mask is not removed prior to etching the wiring line.

34. (Previously presented) The method of claim 33, wherein said contaminants include carbon compounds.

35. (Presently amended) A method for forming conducting structures separated by dielectric material over a substrate:

providing a substrate and a wiring layer above the substrate;

forming a conductive protective layer above the wiring layer;

forming a cap layer above the conductive protective layer;

forming a first mask above the cap layer that exposes selected portions of the cap layer;

etching the cap layer, the conductive protective layer and the wiring layer, at the locations where the cap layer is exposed by the first mask, to form wiring lines having exposed side portions separated by gaps without depositing contaminants from the first mask in the gaps, the wiring lines having a remaining portion of the cap layer above the wiring lines; and

depositing a dielectric material within the gaps at a sputtering rate sufficient to fill the gaps, using high density plasma chemical vapor deposition, the remaining portion of the cap layer above the wiring lines at least during a time when the depositing begins, an initial stage of the depositing forming layers of the dielectric material over the substrate, over the exposed side portions of the wiring lines and over at least portions of the remaining portion of the cap layer, the layers formed over the exposed side portions of the wiring lines in the initial stage covering the side portions of the wiring lines throughout the depositing of the dielectric material within the gaps,

wherein the first mask is removed prior to the etching of the wiring layer.

36. (Canceled).

37. (Previously presented) The method of claim 35, wherein the etched cap layer is used as a hard mask during the etching of the wiring layer.

38. (Previously presented) The method of claim 35, wherein an amount of contaminant deposited in the gaps filled with the dielectric material is decreased by comparison to a process in which the first mask is not removed prior to etching the wiring line layer.

39. (Previously presented) The method of claim 38, wherein said contaminants include carbon compounds.

40. (Presently amended) A method for forming conducting structures separated by dielectric material over a substrate, comprising:

providing a substrate and a wiring layer above the substrate;

forming a conductive protective layer above the wiring layer;

forming a cap layer comprising silicon oxynitride, a nitride and/or a silicon rich-oxide above the conductive protective layer;

forming a photoresist layer above the cap layer;

patterning the wiring layer to form wiring lines separated by gaps, the wiring lines having at least a remaining portion of the cap layer above the wiring lines and having exposed side portions; and

depositing a dielectric material in an initial stage process to form layers of the dielectric material over the substrate and over the exposed side portions of the wiring lines and over at least portions of the remaining portion of the cap layer, the depositing continuing after the initial stage at a sufficiently high etch to deposition ratio to fill the gaps, using a high density plasma chemical vapor deposition (HDPCVD) process, the layers of the dielectric material formed over the exposed side portions of the wiring lines in the initial stage covering the side portions of the wiring lines throughout the depositing of the dielectric material within the gaps, [[;]]

wherein the remaining portion of the cap layer is partially etched prior to the depositing to include slanted surfaces and to protect top corner sections of the wiring lines during the HDPCVD process.

41. (Previously presented) The method of claim 40, wherein the HDPCVD process uses an inductively coupled plasma, helicon or electrostatically shielded radio frequency source.

42. (Previously presented) The method of claim 40, wherein the remaining portion of the cap layer is formed prior to the depositing to have facets adapted to reduce etching during the HDPCVD process.

43. (Previously presented) The method of claim 40 wherein the cap layer comprises a material selected from the group consisting of a silicon nitride material and an oxynitride material.

44. (Previously presented) The method of claim 40, wherein a sputtering rate of the HDPCVD process varies while the gaps are being filled with the dielectric material.

45. (Canceled).

46. (Previously presented) The method of claim 21, wherein the conductive protective layer is absorptive at a wavelength used during the formation of the mask layer.

47. (Previously presented) The method of claim 21, wherein the conductive protective layer comprises titanium nitride.

48. (Previously presented) The method of claim 21, wherein the conductive protective layer limits electromigration in the wiring layer.

49. (Previously presented) The method of claim 21, wherein the HDPCVD process uses an inductively coupled plasma source.

50. (Previously presented) The method of claim 35, wherein the conductive protective layer is absorptive at a wavelength used during the formation of the mask layer.

51. (Previously presented) The method of claim 35, wherein the conductive protective layer comprises titanium nitride.

52. (Previously presented) The method of claim 35, wherein the conductive protective layer limits electromigration in the wiring layer.

53. (Previously amended) The method of claim 35, wherein the HDPCVD process uses an inductively coupled plasma source.

54. (Previously presented) The method of claim 40, wherein the conductive protective layer is absorptive at a wavelength used during the formation of the mask layer.

55. (Previously presented) The method of claim 40, wherein the conductive protective layer comprises titanium nitride.

56. (Previously presented) The method of claim 40, wherein the conductive protective layer limits electromigration in the wiring layer.

57. (Canceled).

58. (Previously presented) The method of claim 21, wherein the dielectric material is not formed on the corners of the remaining portions of the cap layer at the initial stage of the depositing.